

**MICRODERMABRASION****FIELD OF THE INVENTION**

[0001] This invention relates to material for use in microdermabrasion. More particularly, this invention relates to a crystalline emulsion for use in microdermabrasion.

**5 BACKGROUND**

[0002] Skin rejuvenation is a very active field, both from a dermatologic and an aesthetic angle. Many procedures, including chemical peels, laser treatments and dermabrasion, have been used to treat acne scars, light wrinkles, long sun exposure wrinkles, disfiguring scars, stretch marks, hyperpigmentation, and burns. These procedures are expensive, require a certain amount of recovery time and carry a great risk of side effects and unexpected results. Further, some of these procedures are physician based treatments that require surgical procedure and anesthesia. Thus, these procedures are not accessible to a large segment of the population.

[0003] Microdermabrasion was developed a few years ago and is widely accepted due to the absence of complications and shorter recovery time. However, traditional suction microdermabrasion is an expensive procedure which requires large equipment. Further, this procedure is mainly used in salons and spas. As a result, despite the advantages of this procedure over chemical peels, laser treatments and dermabrasion, the number of consumers who have access to this treatment is limited.

[0004] Accordingly, there is a need for providing an improved method for skin rejuvenation treatment that is portable, inexpensive, safe, effective and easy to administer.

**SUMMARY OF THE INVENTION**

[0005] The present invention relates to a crystalline emulsion for use in microdermabrasion. The use of this crystalline emulsion in microdermabrasion addresses a number of critical issues: (1) the need to increase access to skin rejuvenation treatment by providing (i) an inexpensive, and (ii) portable, i.e. for use at home, procedure, (2) the need to decrease side effects and recovery times while maintaining effectiveness and increasing safety and (3) the need to create a procedure with easy administration.

[0006] The crystalline emulsion provides skin rejuvenation treatment for acne, acne scarring, sun damaged skin, age spots, freckles, stretch marks, fine lines, large pores, scars, keloids and flaking skin. In addition, this invention improves skin texture and enhances and maintains the skin's appearance.

[0007] This invention uses the principles applicable in traditional microdermabrasion to provide a skin rejuvenation treatment for use at home with results at least as good as those obtained through use of the machines at salons and spas, while retaining the advantages of decreased side effects and recovery times. The treatment provided for with this invention leaves skin slightly flushed for a few hours, rather than requiring weeks for the skin to heal. Further, this invention is relatively inexpensive compared to traditional dermabrasion with the large machines, laser surgery and chemical peels.

[0008] The present invention provides for a crystalline emulsion comprised of a combination of coated crystals and a carrier, where a true covalent bond is formed between the crystals and the coating. The emulsion has a gel-like quality which keeps the emulsion on the

skin allowing for easy self-administration. This invention also allows treatment to take place at home without the need for anesthesia, rather than at a physician's office or at a spa or salon.

## **DETAILED DESCRIPTION OF THE INVENTION**

### **A. Preparation of a Crystalline Emulsion**

5 [0009] This invention involves the formation of a true covalent bond between molecules of methicone and the oxide linkages of crystals. The actual polymerization is driven by a three way combination of mechanical energy (mixing rapidly), thermal energy (baking), and a catalyst. The process of preparing crystalline emulsions for application to the skin involves the following steps.

#### **1. Crystals**

10 [0010] The crystals of this invention are small and have sharp edges so as to be able to abrade a surface such as skin. The crystals include, but are not limited to magnesium oxide crystals, aluminum oxide crystals or a combination thereof. Preferably, magnesium oxide crystals are used. Materials, such as silicon dioxide, which are rounded function poorly in this  
15 invention as they have no edges to abrade a surface.

[0011] The crystals used herein are of a particle size about 40 – 2000 microns, preferably about 100 – 1200 microns, most preferably about 600 - 800 microns.

### **2. Preparation of Emulsion**

#### **a. Composition**

20 [0012] A combination of methicone, crystals and catalyst is used in the invention. The methicone to crystal weight/weight percentage is about 0.01 – 10.0%, preferably about 0.2 – 5%, and most preferably about 1 – 2%. The catalyst is a compound that can be safely used in the